

REMARKS

This is in response to the final Office Action dated February 24, 2004 for the above identified case. Entry of the above amendment is respectfully requested in order to place the claims in condition for allowance or in better form for consideration on appeal.

CLAIM REJECTIONS

Claims 13-16 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctively claim the subject matter which applicants regard as the invention.

In view of the above amendment canceling claims 13-15 it is submitted that the rejection of said claims 13-15 under 35 USC 112 is moot.

Claim 16 was rejected because it recited the limitation "the electrolyte" in line 3 which lacked antecedent basis in the claim. Claim 16 was also rejected because it recited the limitation "the solvent" in line 6 which lacked antecedent basis in the claim.

With entry of the above amendment the lack of antecedent basis in claim 16 has been corrected. It is therefore respectfully submitted that this rejection has been overcome and should be withdrawn. It is respectfully submitted that the claim as amended is fully supported by the specification as filed.

Claims 13-16 were objected to because the examiner believes that it is unclear whether the dimethylacetamide or dialkylamide is considered part of the solvent of the electrolytic solution.

With entry of the above amendment it is submitted that it is clear therefrom that the DMAC is an additive to the electrolyte solvent. It is therefore respectfully submitted that the rejection with regard to Claim 16 has been overcome and should be withdrawn. It is submitted that the rejection with regard to claims 13-15 is moot in view of their cancellation.

It is respectfully submitted for the foregoing reasons that the rejection of Claim 16 under 35 USC 112, second paragraph, has been overcome and should be withdrawn. It is submitted that Claim 16 does particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Claims 13-16 are rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Kita et al. (U.S. Pat. No. 5,085,954). The Examiner states that Kita et al. disclose an electrochemical cell having an electrolyte comprising a solute, a solvent and an additive, where the additive can be trialkylamine in combination with a dialkylamide such as DMAC. The Office Action further states that Kita et al. disclose that the amount of dialkylamide for stabilizing the lithium salt is from about 0.1 to 5% by volume of the electrolytic solution. The examiner states that the electrochemical cell can be Li/MnO₂, such that LiMnO₂ (which is a lithium manganese oxide) is formed during cycling of the electrochemical cell. The examiner further states that LiMnO₂ inherently has a breakdown voltage of about 5 volts. The Examiner has specifically pointed to example 2 of the patent and has calculated the weight percent of the dimethylacetamide therein to be about 5% by weight of the total weight of the solvent.

The Examiner has stated that the DMAC additive in the electrolyte solution would inherently reduce the decomposition of the electrolyte solution and reduce the formation of gaseous constituents in the electrochemical cell compared to an identical electrochemical cell

with out the DMAC additive. The Office Action states the DMAC additive being a Lewis base also inherently neutralizes acid attack of the lithium salt. Furthermore, the Office Action states that the DMAC additive in the electrochemical cell also inherently absorbs excess charge energy at a voltage less than the breakdown voltage of the cathode active material, i.e. lithium manganese oxide.

Therefore the examiner has stated that when the Examiner believes that functional language asserted to be critical for establishing novelty in claimed subject matter may, in fact be an inherent characteristic of the prior art, that the burden of proof is shifted to the applicant to prove that the subject matter shown in the prior art does not possess the characteristics relied upon.

Applicants respectfully submit that Kita et al. does not anticipate or make obvious the subject matter of claim 16 as amended. Claim 16 as amended is a combination of previous claims 13 and 16 and also makes amendments to correct for the lack of antecedent basis of certain limitations.

Claim 16 as amended is directed to the use of the additive DMAC to an electrochemical cell comprised of a lithium manganese oxide as the cathode active material. It is respectfully submitted that Kita et al. have made electrochemical cells using non-lithium containing materials for the cathode. Even in the Kita specification at column 4, lines 22-25, the majority of the examples of cathode active materials are non-lithium containing metal oxides. The one exception is LiCoO_2 . Claim 16 as amended is specifically directed to an electrochemical cell with lithium manganese oxide as the cathode active material. It is respectfully submitted that Kita et al. do not disclose, teach or suggest that DMAC could be added as an additive to the electrolyte solution of an electrochemical cell comprised of a lithium containing cathode material

to successfully absorb excess charge energy and to prevent breakdown of lithium manganese oxide.

The Office Action states that the Li anode MnO_2 cathode cell would form LiMnO_2 during cycling of the cell. However, applicants respectfully submit that on cycling of such cell Li_xMnO_2 is actually formed. Such material is structurally dissimilar to the lithium ion cathode material LiMnO_2 (spinel).

Therefore applicants respectfully submit that Kita does not anticipate the present invention under 35 USC 102 because Kita et al. do not disclose, suggest or teach, specifically or inherently, the lithium manganese oxide cathode active material. It is further respectfully submitted that Kita et al. does not make obvious the present invention under 35 USC 103 as Kita et al. do not teach, disclose or suggest, specifically or inherently, the lithium manganese oxide cathode material of the present invention. Furthermore, Kita et al. do not teach, disclose or suggest that one with skill in the art could add DMAC, as an additive to an electrolyte solution of an electrochemical cell having a lithium manganese oxide cathode material, to successfully prevent breakdown of the lithium manganese oxide and to absorb excess charge energy at a voltage less than the breakdown voltage of the cathode active material.

Applicants respectfully submit therefore, that the Kita reference does not anticipate or make obvious the claim 16 as amended. It is therefore respectfully submitted that the rejection of claim 16 under 35 USC 102(e) as anticipated by or, in the alternative under 35 USC 103(a) as obvious in view of Kita, has been overcome and should be withdrawn in view of the above amendment and these remarks.

Entry of the above amendment is respectfully requested. Reconsideration of the amended claim in the instant case for allowance is respectfully requested in view of the above amendment

and these remarks. It is respectfully submitted that claim 16 as amended is allowable and passage of the application and claim to issue is respectfully requested.

Respectfully submitted,

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